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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,834	02/12/2004	Reinier Kortekaas	P04,0020	5896

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SCHIFF HARDIN, LLP
PATENT DEPARTMENT
6600 SEARS TOWER
CHICAGO, IL 60606-6473

EXAMINER	
ENSEY, BRIAN	
ART UNIT	**PAPER NUMBER**
2615	

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/777,834	KORTEKAAS, REINIER	
	Examiner	Art Unit	
	Brian Ensey	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/24/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7-13 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jakob et al. U.S. Patent No. 6,816,600 in view of DuFaux U.S. Patent No. 6,611,252.

Regarding claim 1, Jakob discloses a device (1) to remotely operate a hearing device, comprising: an input device (13) configured to manually input control data (See Fig. 1 and col. 3, lines 40-46). Jakob fails to teach the input device comprising: a projection device configured to project one or more virtual input elements; and a sensor device configured to register an operation of the virtual input elements. However, DuFaux teaches a virtual data input device comprising an input device configured to manually input control data, the input device comprising: a projection device (20,40) configured to project one or more virtual input elements; and a sensor device (50,60) configured to register an operation of the virtual input elements for use in any form of communication or computing device (See Figs. 1 and 2 and col. 3, lines 32-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the virtual input device in the control of Jakob for convenient method to operate a miniaturized device (See DuFaux col. 1, lines 56-63).

Regarding claim 2, the combination of Jakob in view of DuFaux further teaches the one or more virtual input elements comprises at least one of images of buttons, rotary switches and sliding switches (See DuFaux col. 4, lines 60-65).

Regarding claims 3 and 12, the combination of Jakob in view of DuFaux further teaches the one or more virtual input elements comprise at least one of images of buttons of a program switch and a loudspeaker control (Defaux teaches any image may be generated, col. 4, lines 60-65).

Regarding claims 4, 13 and 17-20, the combination of Jakob in view of DuFaux does not expressly teach the one or more or all of the virtual input elements are configured to be projected with the projection device onto a surface of the human body simultaneously wherein the surface is the back of a hand. However, DuFaux teaches the virtual image may be projected downward on an angle onto virtually any surface (See Fig. 10 and col. 6, line 64 to col. 7, line 5) and Jakob teaches the device encompassed as a wristwatch (See Fig. 1 and col. 3, lines 14 and 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to project the virtual image on the back of a users hand to limit the necessary projection length and allow for easy operation by the user.

Regarding claim 7, the combination of Jakob in view of DuFaux further teaches the input device is configured to be integrated into a ring, a wristband or a wristwatch (See Jakob Fig. 1 and col. 3, lines 14 and 15).

Regarding claims 8 and 16, the combination of Jakob in view of DuFaux further teaches an activation device as a single physical control element of the device (Defaux teaches any image may be generated, col. 4, lines 60-65, and Jakob teaches the operator may be a single or

multiple element, see col. 3, lines 41 and 42; therefore, a single activation device may be used to operate the device).

Regarding claim 9, the combination of Jakob in view of DuFaux further teaches the input device further comprises a wireless transmitter (7) configured to transmit control signals based on information obtained from the sensor device to the hearing device (15) (See Jakob col. 3, lines 32-51).

Regarding claim 10, Jakob discloses a method to remotely operate a hearing device, comprising; manually inputting information via the one or more manual control elements (13), thereby registering an operation; converting registered operation data to control signals (11) ; and communicating the control signals to the hearing device (7) (See Fig. 1 and col. 3, lines 32-51). Jakob does not expressly disclose projecting one or more virtual elements onto a surface for use as input control elements. However, DuFaux teaches a virtual data input device projecting one or more virtual elements onto a surface for use as input control elements for use in any form of communication or computing device (See Figs. 1 and 2 and col. 3, lines 32-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the virtual input device in the control of Jakob for convenient method to operate a miniaturized device (See DuFaux col. 1, lines 10-63).

Regarding claim 11, the combination of Jakob in view of DuFaux further teaches registering the operation of the one or more virtual input elements quasi-continuously or discretely (See DuFaux col. 6, lines 15-52).

Claims 5, 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Jakob in view of DuFaux as applied to claims 1 and 10 above, and further in view of Rafii et al. U.S. Patent No. 6,512,838.

Regarding claims 5, 6, 14 and 15, the combination of Jakob in view of DuFaux teaches a remotely operated hearing device as claimed. The combination of Jakob in view of DuFaux further teaches the projected image may be any well known deflective optical element (See DuFaux col. 4, lines 43-65). The combination of Jakob in view of DuFaux fails to teach the virtual input elements are scalable in size and the projection device is configured to be freely programmable with regard to the projected information. However, Rafii teaches a small electronic device adapted to receive digital input signals using projected image on a surface which may be rendered from a common graphics file format (eg. GIF) as a diffractive pattern on the projection lens. (See col. 4, lines 54-61 and col. 11, lines 12-27). It is well known in the art that image files from software are readily scalabe in size and therefore freely programmable with regard to the projected image. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the programmable and scalable image device of Rafii in the combination device of Jakob in view of DuFaux to provide any function of the device to be projected at any size onto the receiving surface.

Response to Arguments

With respect to the applicant's argument that *it would not have been obvious to one of ordinary skill in the art at the time of the invention to utilize the virtual input device in the control of Jakob for convenient method to operate a miniaturized device* as stated on page 6, lines 19-24 of the Remarks in the current amendment, the Examiner disagrees.

Jakob clearly teaches a device to remotely operate a hearing device worn on a user's wrist to provide a reliable communication link to the hearing aid comprising one or more manually operable input elements (See Jakobs col. 3, lines 40 and 41). Defaux recognizes the need " for a data input device for use with miniaturized communications and computing equipment that allows the operator to easily input characters and data into such equipment" (See DeFaux col. 1, lines 56-59). Both Jakob and DeFaux are concerned with data input for a miniaturized communication device utilizing manual input elements. Therefore, the combination of Jakob in view of Defaux is obvious to one of ordinary skill in the art.

With respect to the applicant's argument that *a clear connection is missing between Jakob* and *Defaux and that there is not teaching or suggestion to look for possible solutions in the field of computer graphics processing and selective visual display systems for the man of ordinary skill in the art of hearing aids,* as stated on page 7, lines 15-22 of the Remarks in the current amendment the Examiner disagrees.

Both Jakob and DeFaux are concerned with data input for a miniaturized communication device utilizing manual input elements as discussed above thereby establishing a clear connection between Jakob and DeFaux. Further, with the recent developments in miniaturization and wireless communication and computing, it is not unreasonable to look to the computer field for solutions of manual data input. Therefore, the combination of Jakob in view of Defaux is obvious to one of ordinary skill in the art.

With respect to the applicant's arguments regarding claims 4, 13, 17 and 18 that *DeFaux does not teach that a virtual image may be projected downward onto virtually any surface,* the Examiner disagrees.

DeFaux merely provides an example of surfaces upon which the image may be projected (See col. 7, line 57 "e.g., a table or desk top"). DeFaux does not specifically teach that the surface must be "essentially very flat and very smooth" as stated by the applicant on page 8, lines 23 and 24 of the Remarks to the amendment. DeFaux does not specifically teach that the image must be "a large qwerty keyboard" as stated by the applicant on page 9, line 2 of the Remarks to the amendment. DeFaux merely merely provides an example of the image which may be projected (See col. 7, line 18 "e.g., an image of a conventional QWERTY keyboard"). In fact, DeFeaux specifically states that the invention may be used to input character data into portable hybrid communications and computing equipment (See col. 8, lines 47-58). The Examiner agrees that DeFaux does not teach projecting an image onto the human body, however it would be obvious that the use of the data input device in the wristwatch control of Jakob would project an image onto the region of the human body in the area in which the wristwatch is worn and especially the back of the hand or the arm.

With respect to the applicant's arguments regarding claims 5, 6, 14 and 15 as relying on the arguments made with respect to the independent claims, the Examiner relies on the response to the arguments of the independent claims as noted above.

With respect to a request for a fully initialed PTO-1449 statement, the fully signed and initialed statement is included in the current office action.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group **Art Unit 2615**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, Va. 22313-1450

Or faxed to:

(571) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".

Hand-delivered responses should be brought to:

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Randolph Building
401 Dulany Street
Arlington, VA 22314

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SINH TRAN
SUPERVISORY PATENT EXAMINER

BKE
April 4, 2006